

# **2006 Annual Status Report for the Salt Lake City, Utah, UMTRCA Title I Processing Site**

## **Summary**

The second year of reduced ground water monitoring at the Salt Lake City Processing Site was conducted on July 25, 2006. Reduced ground water monitoring was performed as recommended by the State of Utah Department of Environmental Quality, Division of Radiation Control (Utah DEQ/DRC) and directed by the U.S. Nuclear Regulatory Commission (NRC) per letter dated December 15, 2005.

Monitor wells were in excellent condition. Water quality results indicate that molybdenum concentrations in ground water continue to be below the maximum concentration limit (MCL) in shallow aquifer well MW-0144. Ground water level data were collected in conjunction with the ground water quality monitoring. Ground water level measurements indicate an upward hydraulic gradient continues to exist, which prevents contaminants in the shallow unconfined aquifer from migrating downward into the deeper uncontaminated confined aquifer. These monitoring results satisfy the criteria for discontinuing ground water monitoring at the site in accordance with the Ground Water Compliance Action Plan (GCAP) and the Long-Term Management Plan (LTMP), and as agreed upon by the Utah DEQ/DRC and NRC in response to the 5-year monitoring evaluation included in the 2004 annual status report (March 2005). Therefore, no further monitoring will be performed at the site.

The Central Valley Water Reclamation Facility (CVWRF) verified that no land excavations or unauthorized construction occurred within the areas where subsurface soil contaminated with residual radioactive materials (RRM) remains onsite, and that no unauthorized withdrawal or use of ground water from the shallow aquifer occurred onsite during the past year.

No cause for maintenance or a follow-up visit was identified.

## **1.0 Introduction**

This report presents the results of the annual U.S. Department of Energy (DOE) monitoring and the status of the institutional controls at the Uranium Mill Tailings Radiation Control Act (UMTRCA) Title I Processing Site at Salt Lake City, Utah. The CVWRF owns all of the former processing site and controls access to the land and to ground water beneath the site. S.M. Stoller Corporation, the DOE Legacy Management Contractor, conducted the monitoring on July 25, 2006. The monitoring was conducted in accordance with the *Long-Term Management Plan [LTMP] for the Salt Lake City, Utah, UMTRA Project Processing Site* (GJO-2002-307-TAR, January 2002). However, reduced ground water monitoring was performed as called for by the Utah DEQ/DRC (November 9, 2005 letter) and approved by the NRC (December 15, 2005 letter with enclosed Technical Evaluation Report; *Termination of Monitoring at the Salt Lake City UMTRCA Title I Processing Site*).

## 2.0 Final Site Conditions

A shallow unconfined aquifer contains two constituents of potential concern (COPC)—uranium and molybdenum—as a result of historic uranium processing operations. Throughout the region this aquifer also has widespread arsenic contamination resulting primarily from former lead, copper, silver, and gold processing activities (molybdenum also was a byproduct of these processing activities), which were independent of uranium processing. Useable ground water exists in a deeper confined aquifer. An upward hydraulic gradient within the deeper aquifer prevents degradation by the overlying contaminated shallow unconfined aquifer.

The shallow aquifer is not a current or potential source of drinking water due to widespread ambient arsenic contamination, unrelated to the site, which cannot be cleaned up using treatment methods reasonably employed in public water supply systems. Sources of potable water are readily available from municipal water supply systems in the vicinity of the site. Future use of ground water from the shallow aquifer is unlikely based on historical trends and the rapid expansion of commercial and industrial facilities in the area. Therefore, with NRC approval and Utah DEQ/DRC concurrence, supplemental standards (40 CFR 192) were applied to the contaminated ground water in the shallow aquifer. Application of supplemental standards was based on the limited use ground water designation resulting from the widespread ambient contamination.

Subsurface soils contaminated with residual radioactive material were left in place at several locations on the original property, as shown on Figure 1. NRC and the Utah DEQ/DRC concurred that these contaminated soils pose no unacceptable risk to human health or the environment. DOE, the Utah DEQ/DRC, and the CVWRF jointly established a notification mechanism to alert future buyers or developers that subsurface soil contaminated with RRM exists on the property. This notification mechanism includes land-use recommendations governing soil excavation and the construction of structures in areas where contaminated soils remain. These land-use recommendations serve as institutional controls and are presented in the *Notice of Residual Radioactive Contamination* (Attachment 1) to which DOE, Utah DEQ/DRC, and the CVWRF are all signatories. Annotation of the notice was made to the property deed to serve as a future control for this residual radioactive soil contamination.

## 3.0 Site Access and Features

### 3.1 Facility Access

The former processing site, currently owned by the CVWRF, has been redeveloped as a regional wastewater treatment facility, a solid waste transfer facility, and a golf course. Visitors must check in at the Administration Building of the CVWRF before accessing the site.

Access to portions of the wastewater treatment facility is restricted by security fences and locked gates. After-hours access to the golf course also is restricted. Access to the solid waste transfer station is unrestricted, but personnel are asked to check in with facility staff before entering the facility.

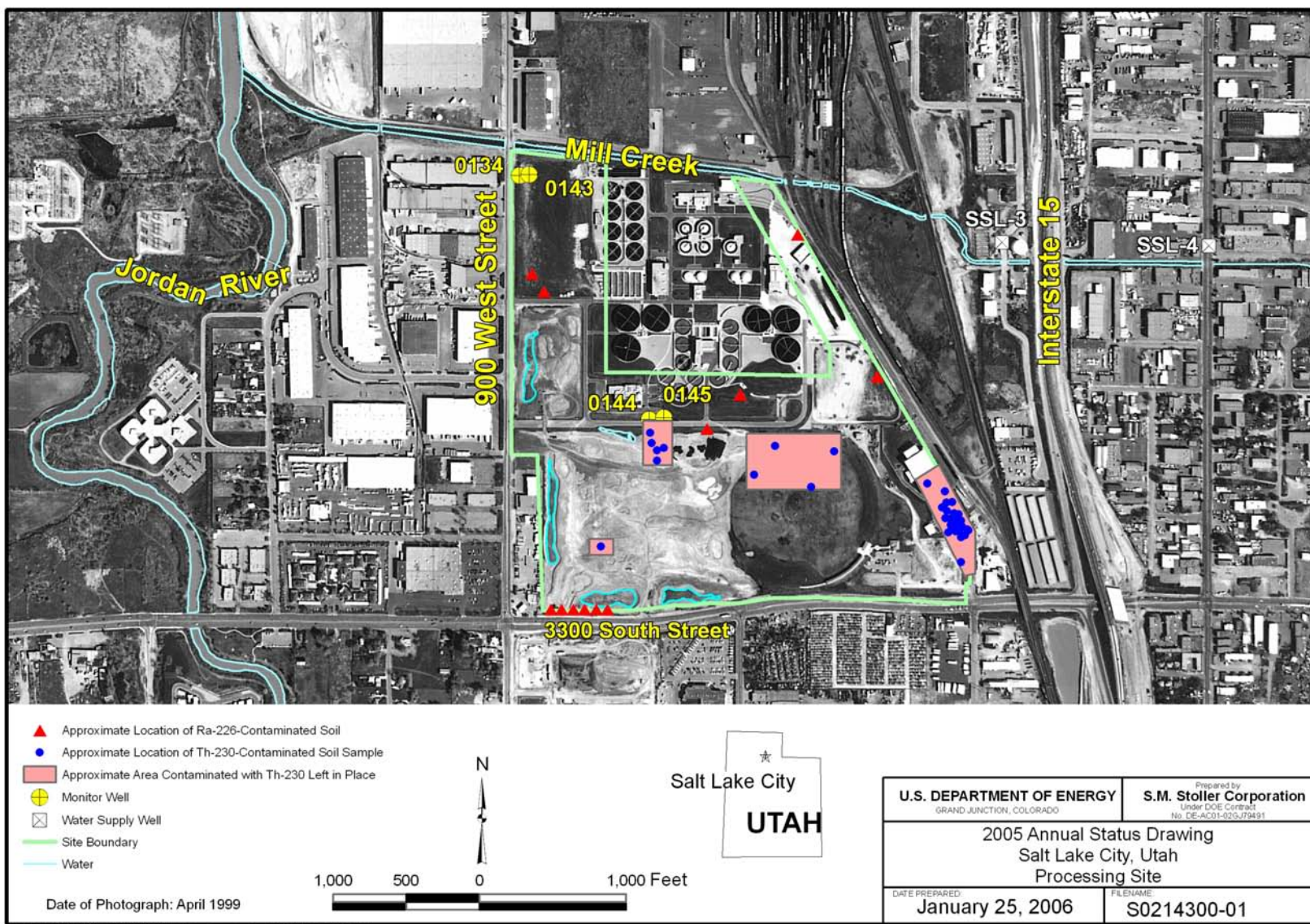


Figure 1. Salt Lake City, Utah, Processing Site

### 3.2 Monitor Wells

DOE owns and maintains four ground water monitor wells remaining at the Salt Lake City Processing Site. The wells are located in pairs. In each pair, one well is completed in the shallow unconfined aquifer and the other is completed in the deeper confined aquifer. One pair of wells are flush-mounted (MW-0144 and MW-0145) and centrally located on the site in a grass-covered area south of the Administration Building (Figure 1). The second pair of wells (MW-0134 and MW-0143), downgradient of the first pair, is located in the northwest corner of the site. Both pairs of wells are downgradient of locations where subsurface soils contaminated with residual radioactive material remain (Figure 1). All wells were secure and in excellent condition.

## 4.0 Ground Water Monitoring

The purpose of the annual ground water monitoring is to confirm compliance with the *Ground Water Compliance Action Plan [GCAP] for the Salt Lake City, Utah, UMTRA Project Site* (Document Number U0039502, May, 2000).

Long-term monitoring of ground water is not normally required under a supplemental standards compliance strategy; however, NRC and the Utah DEQ/DRC stipulated limited (5-year minimum) monitoring as a best management practice in the GCAP. The water-monitoring program at this site started in early 2000. It included both ground water and surface water monitoring. Ground water monitoring consisted of water quality sampling from two onsite wells completed in the shallow aquifer and water level measurements from four onsite wells; two completed in the shallow aquifer and two completed in the deeper aquifer. Water level measurements were collected to confirm that the upward hydraulic gradient present within the deeper confined aquifer continued, thereby, preventing contaminated ground water in the overlying shallow unconfined aquifer from migrating to the deeper uncontaminated confined aquifer. If water level measurements indicated that the upward hydraulic gradient in the deeper aquifer reversed, ground water quality monitoring would also have been conducted in the two deeper aquifer wells to determine if cross-contamination had occurred. Uranium and molybdenum were selected as the COPC because they are two of the most mobile constituents in mill tailings.

Ground water monitoring was performed at the site from 2000 to 2004; the minimum period specified in the GCAP and LTMP. In 2005, following the minimum 5-year monitoring period, and in accordance with the GCAP and LTMP, the monitoring results were evaluated. Based on established criteria, a recommendation to discontinue all ground water monitoring was made and submitted to the NRC for approval, and to the Utah DEQ/DRC for concurrence. The monitoring evaluation was presented in the *2004 Annual Status Report for the Salt Lake City, Utah, UMTRCA Title I Processing Site* (February 2005). The criteria for discontinuing monitoring at the site, as directed in the GCAP, are: 1) no reversal of the ground water hydraulic gradient; 2) a decrease in uranium and molybdenum concentrations in the ground water; and 3) no unacceptable risks related to pumping of ground water by CVWRF or the storm drain sump.

Following their review, the Utah DEQ/DRC concurred with the recommendation to discontinue surface water monitoring and ground water monitoring in shallow aquifer well MW-0134, as well as, monitoring for uranium in ground water. However, due to concerns over the concentration of molybdenum in onsite well MW-0144, completed in the shallow aquifer, primarily in 2003 when an apparent anomalous concentration of 0.215 mg/L was reported, the Utah DEQ/DRC called for an additional two years of reduced ground water monitoring. The reduced ground water monitoring was to include sampling for molybdenum in well MW-0144 and continuing the collection of water level measurements from both the shallow aquifer wells (MW-0144 and MW-0134) and the deeper aquifer wells (MW-0143 and MW-0145) to confirm that the upward hydraulic gradient in the deeper aquifer continued onsite.

NRC, having determined that the second criteria had not been met (e.g., decrease in uranium and molybdenum concentrations in the ground water), as based on a linear regression analysis that did not result in a negative slope for the concentration of molybdenum, directed DOE to conduct the reduced ground water monitoring called for by the Utah DEQ/DRC for an additional two years.

#### Ground Water Quality Results

In December 2005, the first of the two additional years of reduced ground water monitoring; a molybdenum concentration of 0.0850 mg/L was reported in well MW-0144. A blind duplicate sample collected from the same location for quality assurance compared very well; a concentration of 0.0852 mg/L was reported.

The second of the two additional years of reduced ground water monitoring was conducted in July 2006. Results reported a molybdenum concentration of 0.0466 mg/L in well MW-0144. A blind duplicate sample collected from the same location for quality assurance also compared very well; a concentration of 0.0451 mg/L was reported.

Both of these results are below the MCL of 0.1 mg/L established for molybdenum in Table 1 of 40 CFR 192 (the UMTRCA Title I standard for molybdenum in ground water), and when included with the earlier data result in a decreasing trend based on a linear regression analysis. With the exception of the initial result reported in 1999 (0.137 mg/L), and what appears to be an anomalous result reported in 2003 (0.215 mg/L), all six other molybdenum results reported in ground water from this location have been below the MCL. Figure 2 provides a concentration versus time plot of the molybdenum results reported in well MW-0144 from 1999 through 2006 that shows a negative sloping trend line for this COPC.

#### Ground Water Level Measurements

Water level data loggers in the shallow aquifer wells were downloaded (continual measurements) and static water levels were obtained (single point measurements) in the deeper aquifer wells. In each well pair, the water level was higher in the deeper aquifer wells than in the shallow aquifer wells (Figure 3). In fact, artesian conditions were found to be occurring in the two deeper aquifer wells as indicated by the slow overtopping flow of ground water from the well casing. These artesian conditions, along with the lower water levels measured in the shallow aquifer wells, demonstrate a continued upward hydraulic gradient in the deeper aquifer. This condition has been

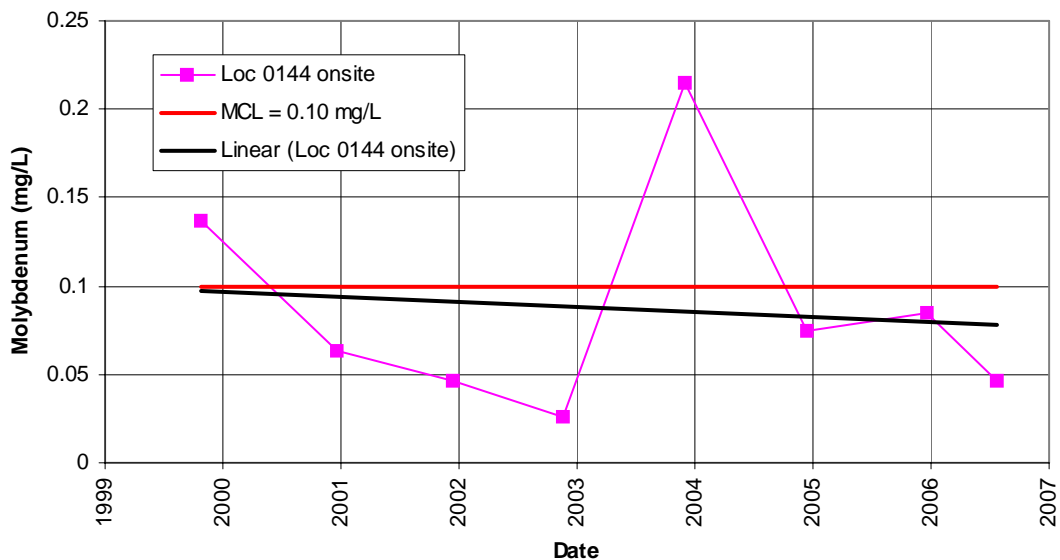


Figure 2. Shallow Aquifer Molybdenum Concentrations at the Salt Lake City Processing Site

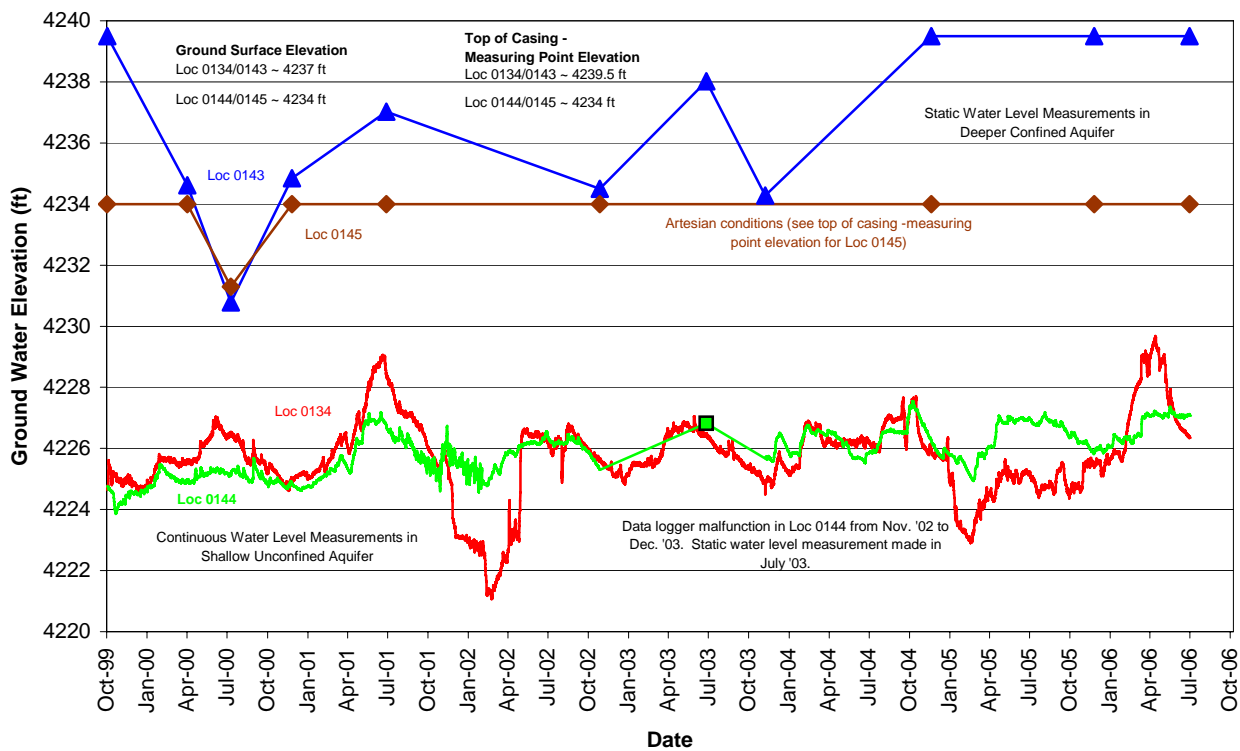


Figure 3. Ground Water Level Measurements at the Salt Lake City Processing Site



consistently monitored and recorded over the past 6 years. The upward hydraulic gradient in the deeper aquifer prevents contaminated ground water from migrating from the overlying shallow unconfined aquifer downward into the deeper uncontaminated confined aquifer. Because of the upward hydraulic gradient in the deeper aquifer, no ground water quality monitoring was performed in the deeper aquifer.

## **5.0 Effectiveness of the Ground Water Compliance Strategy**

The ground water compliance strategy for the shallow aquifer is no remediation and the application of supplemental standards, in accordance with 40 CFR 192.21 (g), based on limited use ground water resulting from widespread ambient arsenic contamination unrelated to historical uranium processing performed at the site. Limited use ground water, as defined under 40 CFR 192.11 (e)(2), is not a current or potential source of drinking water, and cannot be cleaned-up using treatment methods reasonably employed in public water systems. CVWRF indicated there were no unauthorized onsite ground water withdrawals or use from the shallow aquifer in 2006.

In 2006, ground water quality monitoring results were reported below MCL for the COPC (molybdenum) at location MW-0144 and ground water level measurements confirm that an upward hydraulic gradient continues to exist in the deeper confined aquifer. This upward hydraulic gradient continues to prevent the downward migration of constituents from the overlying shallow unconfined aquifer into the deeper confined aquifer. Because site-related COPC remain below their respective MCL, onsite withdrawals of shallow aquifer ground water with regard to these COPC is no longer a concern. Although, widespread ambient arsenic contamination unrelated to historical uranium processing occurs in the shallow aquifer, and should be noted and of concern to the CVWRF when considering any future use of onsite ground water from the shallow aquifer.

Therefore, the application of supplemental standards as a compliance strategy remains effective at the site.

## **6.0 Institutional Controls**

Institutional controls at the site consist of: (1) annual property owner awareness of the recommendations contained in the *Notice of Residual Radioactive Contamination* regarding soil excavations within the areas where RRM contamination remains in subsurface soils onsite, and (2) annual property owner awareness that no unauthorized withdrawal or use of ground water from the shallow aquifer is to occur onsite.

Mr. Reed Fisher, manager of CVWRF, confirmed that he is aware of the institutional controls at the site. Mr. Fisher indicated that in 2006 there have been no excavations within the areas where RRM contamination occurs in subsurface soils onsite, and that the *Notice of Residual Radioactive Contamination*, which includes land-use recommendations, remains annotated to the property deed. Mr. Fisher also indicated that there were no unauthorized ground water withdrawals or use from the shallow aquifer onsite in 2006. However, because site-related COPC

remain below their respective MCLs, ground water withdrawals from the shallow aquifer onsite will no longer be of concern with regard to these COPC, and therefore, an institutional control for this activity will no longer be necessary at the site.

## 7.0 Conclusions

In accordance with the GCAP and LTMP, constituents of potential concern (uranium and molybdenum) in the shallow aquifer are not to migrate to the deeper aquifer that contains potable water. In order to ensure compliance, the GCAP and LTMP required annually, as a best management practice for a minimum period of 5-years, to: (1) monitor surface water quality; (2) monitor ground water quality in the shallow aquifer; and (3) monitor ground water levels to verify that an upward hydraulic gradient continues in the deeper uncontaminated confined aquifer, thereby, preventing the downward migration of contamination from the overlying shallow unconfined aquifer.

Following the minimum 5 years of monitoring, the GCAP called for an evaluation of the monitoring program. This evaluation was completed and submitted to the NRC and Utah DEQ/DRC in March 2005 with a recommendation to discontinue all surface and ground water monitoring at the site. The criteria for discontinuing monitoring at the site, as agreed to by the Utah DEQ/DRC, and approved by the NRC in accordance the GCAP and LTMP, are: (1) no reversal of the ground water hydraulic gradient; (2) a decrease in uranium and molybdenum concentrations in the ground water; and (3) no unacceptable risks related to pumping of ground water by CVWRF or the storm drain sump.

Following their review, the Utah DEQ/DRC concurred with the recommendation to discontinue surface water monitoring and ground water monitoring in shallow aquifer well MW-0134, as well as, monitoring for uranium in ground water. However, due to concerns over the concentration of molybdenum in onsite well MW-0144 (completed in the shallow aquifer), the Utah DEQ/DRC called for an additional two years of reduced ground water monitoring.

The NRC, having determined that the Criterion 2 (a decrease in uranium and molybdenum concentrations in the ground water) had not been met, as based on a linear regression analysis that did not result in a negative slope for the concentration of molybdenum, directed DOE to conduct the reduced ground water monitoring called for by the Utah DEQ/DRC for the additional two years (through 2006). The NRC stated that if upon completion of the additional two years of reduced ground water monitoring, the molybdenum concentration set data from well MW-0144 exhibits a decreasing trend (e.g., linear regression analysis resulting in a negative slope), or if molybdenum levels remain below the 0.01 mg/L 40 CFR 192 UMTRCA Title I standard for molybdenum in ground water (e.g., the MCL), all monitoring at the site can be terminated. The NRC also stated that if during the additional two-year period of reduced ground water monitoring, conditions influencing Criterion 1 (no reversal of the ground water hydraulic gradient) or Criterion 3 (no unacceptable risks related to pumping of ground water by CVWRF or the storm drain sump) significantly change, termination of monitoring at the site would need to be reconsidered. Results demonstrate that all three criteria have been met.



In conclusion, the July 2006 ground water monitoring results complete the two years of additional reduced ground water monitoring called for by the Utah DEQ/DRC and directed by the NRC in response to the 5-year monitoring evaluation. These ground water monitoring results, along with information received that indicated no unacceptable risks related to pumping of ground water by CVWRF or the storm drain sump occurred within the two year period, satisfy the agreed upon criteria for discontinuing all monitoring at the site in accordance with the GCAP and LTMP. Therefore, no further monitoring will be performed at the site.

## 8.0 Recommendations

**Issue:** Due to concerns over the concentration of molybdenum in onsite well MW-0144, the Utah DEQ/DRC called for an additional two years of reduced ground water monitoring (through 2006). The NRC directed the additional two years of reduced ground water monitoring with the understanding that all monitoring would be discontinued at the end of this period if the criteria stated within the GCAP and LTMP for discontinuing monitoring were met.

**Recommendation:** All monitoring at the site will be discontinued because the two years of additional reduced ground water monitoring called for by the Utah DEQ/DRC and directed by the NRC is complete and the agreed upon criteria for discontinuing monitoring at the site has been met.

2. **Issue:** Effective institutional controls (e.g. property owner awareness of property deed annotation regarding notification of onsite radiological subsurface soil contamination and associated land-use recommendations) must be maintained for the areas where contamination with RRM remains in subsurface soils at the site.

**Recommendation:** Annually verify the effectiveness of the institutional controls by interviewing the manager of CVWRF (current property owner). In addition, periodically check that the *Notice of Residual Radioactive Contamination* (Attachment 1), to which DOE, Utah DEQ/DRC, and the CVWRF are all signatories, continues to be annotated to the property deed. Annotation of the notice to the property deed serves as a notification to future buyers or developers of contaminated soils onsite, and provides control for this residual radioactive soil contamination. Requesting a copy of the property deed every five years is recommended (a copy was last requested in January 2006).

3. **Issue:** The institutional control to determine if any unacceptable risks have occurred as a result of unauthorized withdrawal or use of ground water from the shallow aquifer onsite is no longer necessary because ground water monitoring results have demonstrated COPC have remained below their respective MCL.

**Recommendation:** Discontinue verifying annually from the property owner that no unauthorized onsite withdrawal or use of ground water from the shallow aquifer has occurred.

## **ATTACHMENT 1**

### **Notice of Residual Radioactive Contamination**

AMENDED

NOTICE OF RESIDUAL RADIOACTIVE CONTAMINATION

THIS NOTICE IS TO ALERT BUYERS OR DEVELOPERS THAT RESIDUAL RADIOACTIVE CONTAMINATION ~~EXISTS~~ ON THE PROPERTY HEREIN DESCRIBED.  
/EXISTS

RECITALS

A. WHEREAS, the current owner of the property known as the Salt Lake Vitro Site situated in the county of Salt Lake, Salt Lake City, Utah, and more particularly described on Exhibit 1 attached hereto is Central Valley Water Reclamation Facility Board located at 800 West Central Valley Road, Salt Lake City, Utah, 84119;

B. WHEREAS, the Salt Lake Vitro Site was used by the Vitro Chemical Company to process uranium ore from 1951 to 1964 and to process vanadium ore from 1964 to 1968;

C. WHEREAS, when milling operations were discontinued in 1968, more than four million tons of uranium mill tailing waste remained on the Salt Lake Vitro Site;

D. WHEREAS, under the Uranium Mill Tailings Radiation Control Act of 1978 (Public Law 95-604), which requires the remediation of the identified uranium mill tailing sites, the United States Department of Energy and the state of Utah entered into Cooperative Agreement Number DE-FC04-81AL616309, dated March 30, 1983, for the remediation of the Salt Lake Vitro Site; between 1985 and 1987 excavation and disposal of the uranium mill tailings and site restoration were performed;

E. WHEREAS, not all residual radioactive materials were removed during remedial action, isolated areas of the radioactive contamination remain, examples of which are shown on the map attached hereto as Exhibit 2;

F. WHEREAS, the cleanup of the Salt Lake Vitro Site is documented in the *Completion Report for the UMTRA Project Vitro Processing Site Salt Lake City, Utah*, ("Completion Report") dated June 1997 which provides a discussion of the known contaminated areas, including an estimate of the amount of contamination present, the approximate location of the radioactive contamination, and a health assessment resulting from exposure to the contaminants; and

G. WHEREAS, the Completion Report may be examined at and copies obtained from the following:

State of Utah  
Department of Environmental  
Quality  
Division of Radiation Control  
168 North 1950 West, Building #2  
Salt Lake City, UT 84114-4850  
(801) 536-4250

Department Of Energy  
Grand Junction Office  
2597 B <sup>3</sup>/<sub>4</sub> Road  
Grand Junction, CO 81503  
(970) 248-6000

Department of Commerce  
National Technical Information  
Services  
5282 Por Royal Road  
Springfield, VA 22161  
(703) 487-4650

H. NOW THEREFORE the United States Department of Energy, the state of Utah, and the Central Valley Water Reclamation Facility Board hereby recommend to prospective purchasers or developers of part or all of the Salt Lake Vitro Site that the following actions be taken:

1. Verify that future construction plans do not occur in contaminated areas. If there is a possibility of encountering contaminated material, contact the Utah Department of Environmental Quality, Division of Radiation Control.
2. Prior to construction, conduct appropriate radiological surveys to determine whether radioactive elements are present, and their identity, concentration, and distribution.

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3. If radioactive materials are encountered during construction, the materials may be: (a) dispensed of as radioactive waste in an appropriate waste facility; or (b) buried into the deepest part of the excavation during back filling.
4. Regardless of the results of the radiological surveys, if there are construction plans for habitable structures (e.g., residential, institutional, commercial, or industrial buildings and the like), consider installing a passive sub-slab radon ventilation system that will vent radon soil gas to the atmosphere.

Dated this 26<sup>th</sup> day of August, 1997

UNITED STATES DEPARTMENT OF ENERGY

By: George J. Rael  
George Rael  
Director  
Environmental Restoration Division

STATE OF NEW MEXICO     )  
  ) ss.  
COUNTY OF BERNALILLO    )

Before me, a Notary Public qualified for Bernalillo County, personally appeared George Rael, who by me duly swore did say that he is the Director of the Environmental Restoration Division and he further acknowledged to me that the above NOTICE OF RESIDUAL RADIOACTIVE CONTAMINATION document was duly executed by him on behalf of the United States Department of Energy.

WITNESS my hand and Notarial Seal on this 26<sup>th</sup> day of August, 1997

Michael S. Mataya  
Notary Public  
PUBLIC  
Residing at: Atbuquerque NM  
My Commission Expires: 5/25/2001

7760267791

Dated this 3rd day of September, 1997

STATE OF UTAH  
DEPARTMENT OF ENVIRONMENTAL QUALITY

By: William J. Sinclair  
William Sinclair  
Director  
Division of Radiation Control

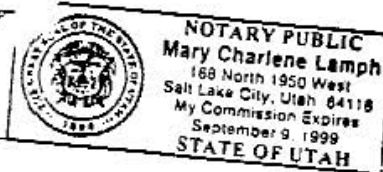
STATE OF UTAH                    )  
  ) ss.  
COUNTY OF SALT LAKE        )

Before me, a Notary Public qualified for Salt Lake County, personally appeared William Sinclair, who by me duly sworn did say that he is the Director of the Division of Radiation Control and he further acknowledged to me that the above NOTICE OF RESIDUAL RADIOACTIVE CONTAMINATION document was duly executed by him on behalf of the state of Utah.

WITNESS my hand and Notarial Seal on this 3rd day of Sept, 1997.

Mary Charlene Lamph  
Notary Public

Residing at: Salt Lake City



My Commission Expires: Sept 9, 1999

760861192

Dated this 11 day of Sept, 1997

CENTRAL VALLEY WATER RECLAMATION FACILITY BOARD

By: Reed Fisher  
Reed Fisher  
General Manager

STATE OF UTAH )  
 ) ss.  
COUNTY OF SALT LAKE )

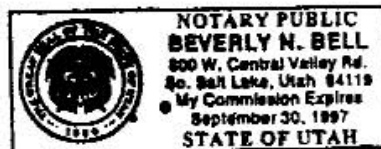
Before me, a Notary Public qualified for Salt Lake County, personally appeared Reed Fisher, who by me duly sworn did say that he is the General Manager of the Central Valley Reclamation Facility and he further acknowledged to me that the above NOTICE OF RESIDUAL RADIOACTIVE CONTAMINATION document was duly executed by him on behalf of the Central Valley Water Reclamation Facility Board.

WITNESS my hand and Notarial Seal on this 11<sup>th</sup> day of September 1997.

Beverly N. Bell  
Notary Public

Residing at: Salt Lake City, UT

My Commission Expires: 09/30/97



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1011-1130211107

CO. RECORD

6741920  
32.00  
NANCY WORKMAN  
RECORDED, SALT LAKE COUNTY, UTAH  
CALLISTER WEBER & McCALLISTER  
GATEWAY TOWER EAST STE. 900  
SLC UT 84133  
REC BY: J. FERGUSON  
DEPUTY

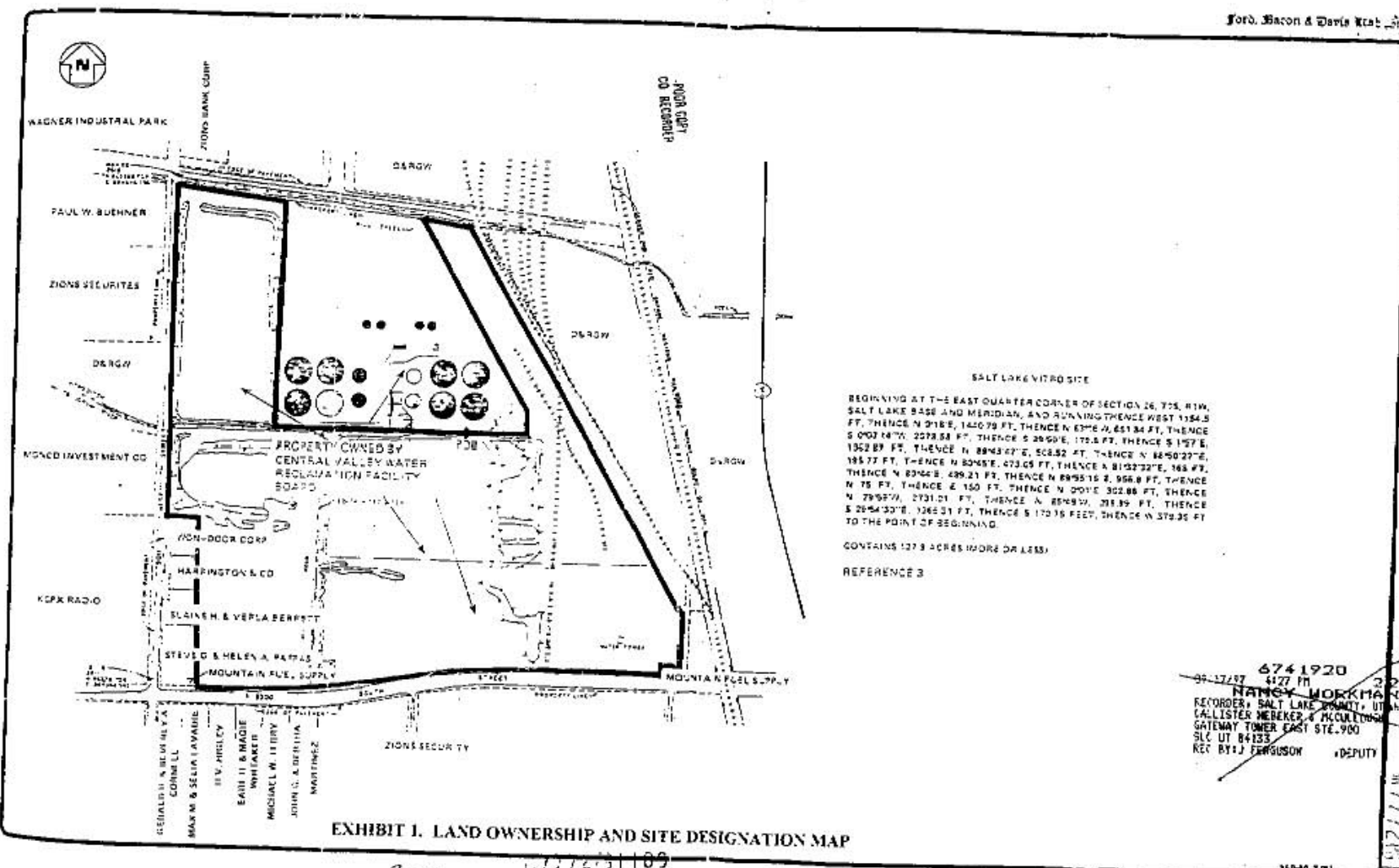
250-40 2/81

**SALT LAKE VITRO SITE**  
BEGINNING AT THE EAST QUARTER CORNER OF SECTION 26, T2S, R1W, SALT LAKE BASE AND MERIDIAN, AND RUNNING THENCE WEST 1184.5 FT. THENCE N 21°E, 1440.75 FT. THENCE N 63°E, 1451.84 FT. THENCE S 0°02'14"W, 2073.54 FT. THENCE S 30°50'E, 170.5 FT. THENCE S 1°57'E, 1352.87 FT. THENCE N 88°43'E, 508.52 FT. THENCE N 46°50'22"E, 185.77 FT. THENCE N 80°58'E, 273.05 FT. THENCE N 81°52'22"E, 163.47 FT. THENCE N 80°48'E, 439.21 FT. THENCE N 89°55'15"E, 958.8 FT. THENCE N 75°E, THENCE E 150 FT. THENCE N 89°55'15"E, 958.8 FT. THENCE N 75°E, 2731.21 FT. THENCE N 80°48'E, 211.39 FT. THENCE S 26°54'30"E, 1265.31 FT. THENCE S 17°15'E, THENCE N 57°35'E TO THE POINT OF BEGINNING.

CONTAINS 127.3 ACRES MORE OR LESS.

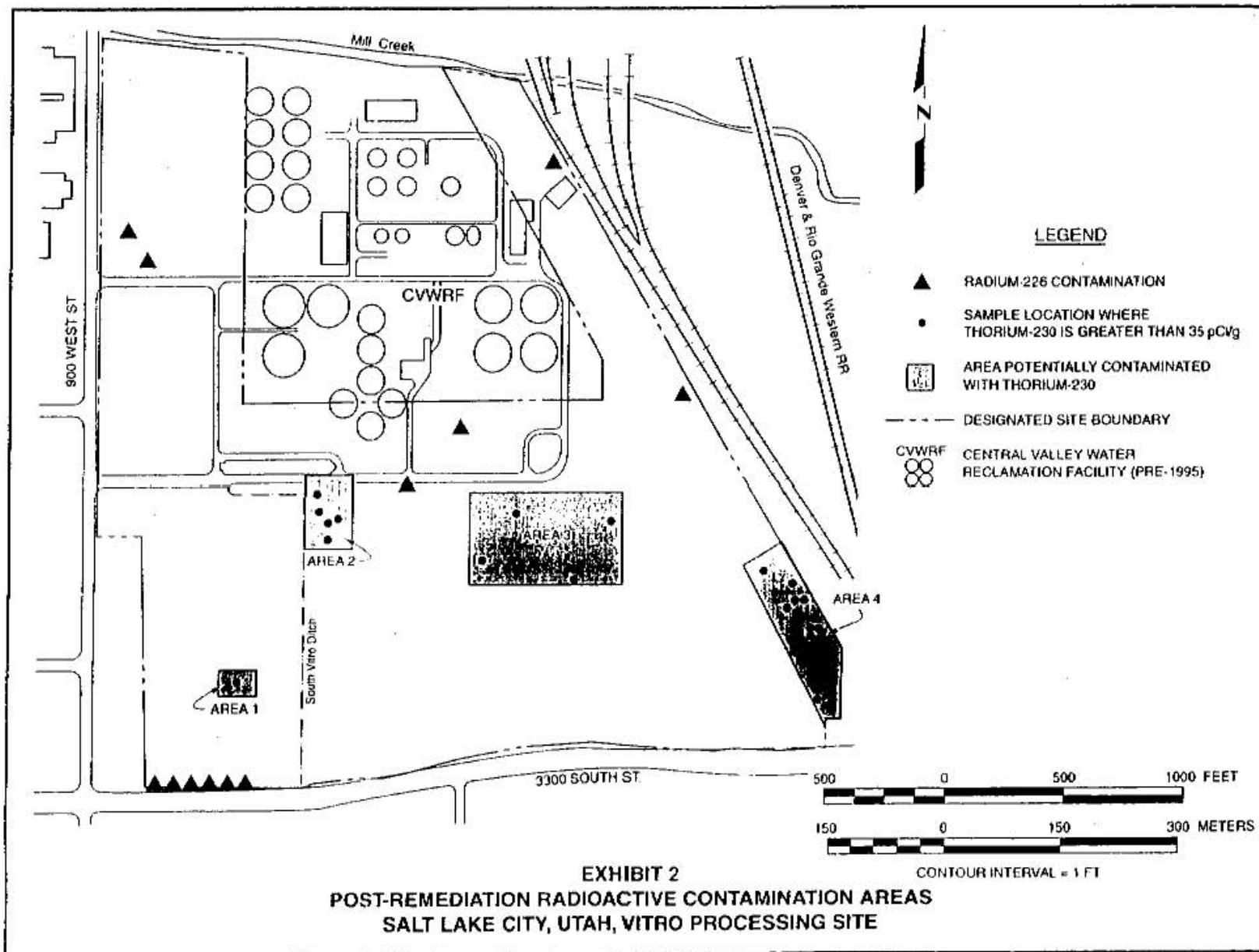
REFERENCE 3

EXHIBIT 1. LAND OWNERSHIP AND SITE DESIGNATION MAP



BK 7712  
Pg 1109  
771231109  
771231109





MAC SITE/SLC/ATTCH0CH/CRATTACH

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